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upon cities the immediate need of establishing terminal markets connected with regional markets; in developing trolley freight, motor truck and parcel post deliveries so that nearby products may be brought in cheaply; in forming coöperative associations; in urging educational development in practical home economics in the grades of our public schools; in demanding that all city nurses and social workers be required to have training in home economics before they are ready to go to work, and in this way may help to eliminate some racial prejudices through health centers and social centers.

The food problem has become not only the problem of the consumer represented by the housewife but is the problem of men and women in all walks of life. Only by their coöperation can there be any stable solution.

## FOOD CONSERVATION IN NEW YORK CITY

BY LUCIUS P. BROWN,

Director, Bureau of Food and Drugs, Department of Health, New York City.

In telling what has been done in the city of New York for conservation, it is necessary to tell you that the Food and Drugs Bureau of the Department of Health has a force of some ninety inspectors within the city. This force is divided into two broad divisions as far as the work is concerned. One of these divisions works with the retailer in maintaining a sanitary condition of the stores and the quality of the food sold by the grocer, restaurant people and delicatessen man and allied callings. The other division of the force looks after the food in a wholesale way and for this purpose is divided not along geographic but along functional lines.

One squad from the latter force meets the city's food as it enters the city and halts there all unsound material, forcing, when any consignment of food is found to contain both sound and unsound material, the separation of the sound from the unsound portions. It has been found by experience that one of the most effective ways of using food materials which are in part unsound or in which the unsoundness has not proceeded to its ultimate term of decay is to subject it to that form of camouflage which is so readily offered by

making it into preserved material. This is of course particularly true of fruits, which can be made into preserves, jams and jellies. Consequently another squad has been formed which has for its function the inspection of food factories of all sorts. This squad likewise looks after goods which are stored in dry and cold storage warehouses. The district men are able to point out those forms of spoilage which occur as the result of retail conditions. Through all these sources of information we are able pretty thoroughly to identify causes of spoilage due to transportation and distribution defects or conditions and to form an excellent idea as to what causes of spoilage, due to conditions existing on the farm, are readily preventable. The information thus collected has enabled preparation of a somewhat systematic analysis of the causes for spoilage which it seems worth while to reproduce here.

Speaking broadly, the efforts of the New York Health Department have been directed towards correcting such of these conditions as occur within the city, to ascertaining what the reasons for these conditions were when they have occurred without the city, and notifying persons responsible for such decay-producing conditions to the end that they might be minimized in future; and when foods have actually arrived in the city in lots, parts of which have been decayed, to procuring a use for them through the separation of the unsound portions.

The city's laws provide for the destruction of unsound food-stuffs and the unpleasant necessity of such destruction, if we are to do our duty, has in these days of high foodstuffs, greatly impressed every member of our force with the necessity of promoting all possible conservation.

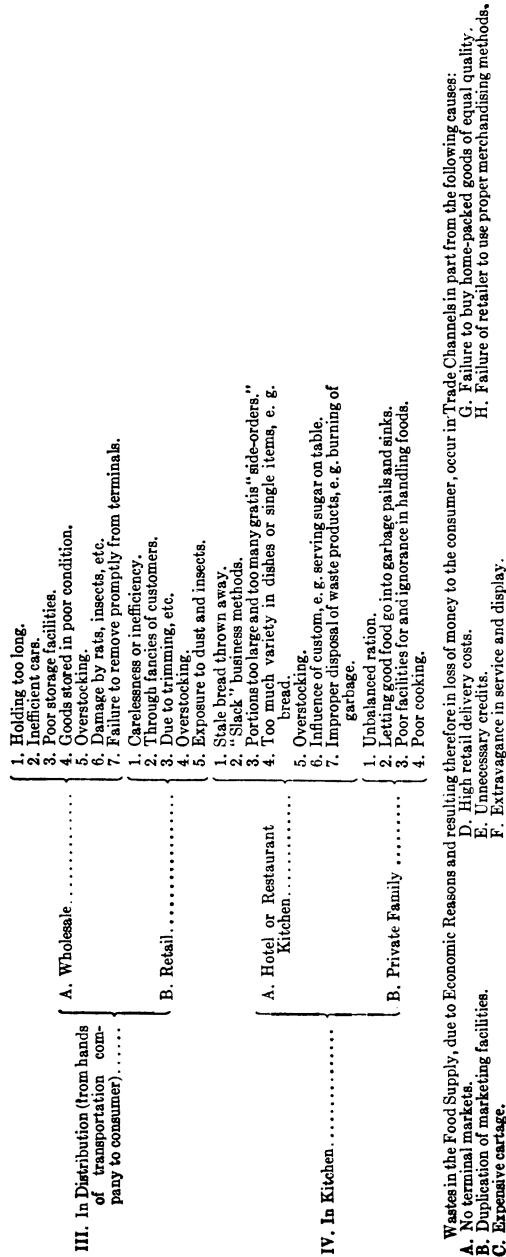
It has been estimated that the city of New York consumes in the neighborhood of five billions of pounds of food per annum, which is consumed by about five millions of people. A very large portion of the food for the whole metropolitan district of some seven million people passes under the eye of New York City's Health Department, while New York is the entrepot for a very large portion of the whole northeastern part of the United States. During the winter and spring of the current year, the condemnations of foodstuffs were at the rate of about 24,000,000 pounds per annum, which is about five-tenths of 1 per cent of the total food supply. Nine-tenths of this amount were perishables, that is to say fruits and vegetables, which, of course, form less than 20 per cent of the average dietary,

## PARTIAL ANALYSIS OF FOOD-WASTE PROBLEM

Prepared by Lucius P. Brown, Director of Bureau of Food and Drugs, Department of Health, New York City.

### WASTES OF FOOD OCCUR IN ITS HANDLING AND UTILIZATION FROM THE FOLLOWING CAUSES

A. On Farm	1. Growing conditions . . . . .	a. Unfavorable weather, weakening plant.
		b. Insect pests or micro-organism infection.
		c. Excessive rains or drought at time of packing.
		d. Shortage of labor.
		e. Too long storage before shipment.
		f. Storage under unfavorable conditions before shipment.
		g. Too early harvesting.
		h. Holding of cars too long because of shortage of labor.
		i. Due to unskilled labor.
		j. Due to shortage of labor.
B. From Producer's Hands	3. Poor packing . . . . .	k. Rough handling of filled package.
		l. Unsuitable or poorly made containers.
		m. Poor grading.
		n. Undue holding of cars to secure carload freight rates.
		o. Overloading of cars.
		p. Poor judgment or carelessness in placing packages in car.
		q. Same causes as shown under 1A-2e; 1A-2d; 1A-3d.
		r. Failure to properly ice.
		s. Shoulage from insanitary conditions.
		t. Spoilage due to unskilled labor or labor shortage.
C. In Factory . . . . .	4. Shipping defects . . . . .	u. Insufficient number or poor quality of containers.
		v. Failure to use by-products.
		w. Shortage of cars.
		x. Congestion on loading trucks.
		y. "Slack" management.
		z. Defects in handling . . . . .
		aa. Refrigeration defective or lacking altogether.
		ab. Cars not rendered frost-proof.
		ac. Due to poor management.
		ad. Due to strikes, etc.
II. In Transit (in hands of transportation companies) . . . . .	3. Delays in transit . . . . .	ae. Due to floods, storms, etc.
		af. Due to track shortage.
		ag. Through slack management.
		ah. From undue length of demurrage.
		ai. Strikes or other labor troubles.
		aj. Due to shortage of storage place for goods.
		ak. Wholly unsound.
		al. To profit by market changes (at consignee's order).
		am. Partly unsound and overhauling not profitable.
		an. Partly unsound but facilities to salvage unavailable.
C. After Arrival at Destination . . . . .	1. Congestion at piers or other terminals . . . . .	ao. Market conditions believed to be unfavorable.
		ap. Abandoned by consignee.
		aq. Rough handling at terminals.



Waste in the Food Supply, due to Economic Reasons and resulting therefore in loss of money to the consumer, occur in Trade Channels in part from the following causes:

- A.** No terminal markets.
- B.** Duplication of marketing facilities.
- C.** Expensive carriage.
- D.** High retail delivery costs.
- E.** Unnecessary credits.
- F.** Extravagance in service and display.
- G.** Failure to buy home-packed goods of equal quality.
- H.** Failure of retailer to use proper merchandising methods.

Most of this material is absolutely unfit for any use. Considering the large territory served by New York City, the amount of food which it has been necessary to send to the dump is surprisingly small.

The form of effort in conservation which appears to offer the most promising results is that which is expressed in letters to shippers, transportation lines, etc. Thus, a Japanese gentleman in California was on September 12 notified that five crates of black figs shipped by him had become unsound because they were packed in flat crates instead of the regular fig carriers. A gentleman in Kentucky was notified that 10 per cent of a shipment of broilers had become unsound because this poultry was not properly cooled out before packing. A farms-company in Florida was notified that 206 barrels of potatoes which were 50 per cent unsound had not been overhauled by the consignee, as should have been the case, and that the cause of damage was the packing of same while wet in double-headed barrels. The response to such letters is usually most satisfactory and prompt and they have been productive of much benefit.

When goods have arrived in consignments partially unsound, the aim of the department has been to procure a use for them if possible. Many consignments have been sent to the charitable institutions under city management. More important have been the efforts of a group of women who have taken from the railroad company partially spoiled shipments abandoned by the consignee, have separated sound from unsound portions by means of cheap or volunteer labor, have sold such portion as there was immediate sale for and have canned or otherwise preserved the remainder. It is obvious that such a group may be very busy without making much impression on the total food supply but their labors have an excellent moral effect and they do succeed in saving a certain amount. In all this work we have had most hearty coöperation from the dealers in foodstuffs within the city, and I want to take this occasion to say that I have found quite as high an average of integrity, ability and patriotism in this group as in any other group of equal size.

In addition to these methods of conservation, we find it profitable to collect certain statistics. Working together with the Bureau of Markets, United States Department of Agriculture, we are able to pretty thoroughly cover daily receipts of foods. The value of an accurate knowledge of this supply is evident. We like-

wise collect daily prices, wholesale and retail. The markets squad first mentioned turns into the head office by telephone early every morning the figures at which actual sales have been made at receiving points during the morning. In addition to this certain district men telephone to the office retail prices during the morning and by ten o'clock these are compiled and ready for use in the afternoon papers.

It is obvious that if the papers will print these figures, the discriminating and careful housewife will be able by a study of them to buy much more effectively. But unfortunately the average housewife does not appear to have time to give to such study, and a system is now being tested by which it is thought that such news can be put into attractive form, readily available to even the most inexperienced woman. Such should be the aim of other cities desiring to inaugurate a similar service. In the city of Philadelphia, a somewhat better plan than in New York has been adopted, but even this plan does not appear to thoroughly fit the case.

It has been most interesting, in watching the retail prices as shown up by this inquiry during the past four months, to note how they differ in different sections of the city. The causes for this are not far to seek. One of the chief things is the difference in service demanded, another is the differing overhead charges, while still a third is dependent on the demands in living of the merchants themselves, which are again dependent in large part on the section of the city in which the merchant lives. The pushcart man, of whom there are some twelve or fifteen thousand in the city of New York, is naturally an important agency of retail distribution and is a great stabilizer of prices. He is satisfied with a very small profit and, because of this small margin, is able to make a quick turnover. He hires his cart from one of some 150 so-called pushcart stables for a small sum per day and ventures forth upon the streets more or less like the old-time trader who carried his argosy to distant lands. The pushcart man may be a merchant of food today, of hardware tomorrow and of clothing the third day.

Looking now to next year, I want to make the suggestion that because of the demand for shipping in the Atlantic, the growers of perishables in southwestern Europe and in the Western Islands are largely cut off from their ante-bellum European markets. This will force them to seek sale for their products in the United States.

Because of the difficulties of shipping such perishables under war time conditions, a large proportion of such shipments will unquestionably arrive in poor condition, so that they will not return commercially the cost of salvage and the duty. Whole shiploads are sometimes affected in this way. It is desirable that some arrangement be made with the Treasury Department by which, after the consignee has abandoned such shipments, they may be salvaged by volunteer labor and the duty on the salvaged portion remitted. The remainder will, of course, be destroyed. This is a matter which will be of importance to the whole Atlantic seaboard and should be looked after at once.

Finally, it seems to me that there cannot be too great a development of the process of dehydration of vegetables. The great desiderata, aside from the obvious keeping down of cost, are quality of product and the finding of an outlet for it. The two are necessarily intimately connected. Most of the material at present on the market is not of a sort to commend itself to a prospective new consumer. It is noteworthy that heretofore, except in Germany, there has been no sale for such products except in war time, save in very limited amounts to camps or industrial or mining operations in sections remote from agricultural areas, carriage to which would be prohibitive on the fresh products. It is necessary that the dehydrated products when cooked should be little, or not at all, changed in taste and appearance from the fresh product. The obtaining of material of the required quality is entirely possible. During this winter all possible effort should be placed on the location of cheap and effective dryers in sections furnishing sufficient supplies of the raw material.